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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/486,530	06/01/2000	PETER CHARLES FLORENCE	P/25-254	8653
2352	7590	07/12/2005	EXAMINER	
OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403			FAN, CHIEH M	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/486,530

Applicant(s)

FLORENCE ET AL.

Examiner

Chieh M. Fan

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The amended specification is objected to because of the following informalities: it appears that the section heading "Brief Summary of the Invention" should be placed after the second paragraph of page 9. The section heading "Brief Description of the Drawings" should be placed after the second full paragraph of page 11, and the section heading "Detailed Description of the Invention" should be placed after the fifth full paragraph of page 14.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6-9, 11-14, 16-19, 21, 24-27, 29-31 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Leung et al. (U.S. Patent No. 5,444,697, "Leung" hereinafter).

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Regarding claim 1, Leung teaches a communication apparatus comprising means for receiving a modulated radio-frequency signal (input to 43 in Fig. 1), means for down-converting a received modulated radio-frequency signal (43, 52, 53 in Fig. 1), means for digitizing a down-converted signal (60 especially 61 in Fig. 1, col. 8, lines 25-27) and means for exporting (60 to 70 in Fig. 1) at least a part of the digitized modulated signal (i.e., a QAM signal) to a main processor (72 in Fig. 1, 72 is inherently a processor since it is located in a computer) in a personal computing device (70 in Fig. 1, col. 6, lines 27-29), the main processor being programmed to perform demodulation of the digitized modulated signal to obviate the need for a DSP (the demodulation of the QAM signal is performed by the element 72 in the PC 70, not the DSP 60; also note that QAM stands for Quadrature Amplitude Modulation, the decoding of a QAM signal is therefore essentially a demodulation process, which reverses the quadrature amplitude modulation process).

Regarding claim 2, Leung further teaches means for connection to at least one bus within the personal computing device (col. 6, lines 38-39).

Regarding claim 4, Leung also teaches means for dividing the signal with respect to time (63, 64 in Fig. 1).

Regarding claim 6, as shown in 53 and 61 of Fig. 1, a single down-converted signal is generated.

Regarding claims 7-9, since Leung teaches an FM receiver (43 in Fig. 1) which requires the process of tuning, the claimed limitations such as means for altering the

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bandwidth and means for altering the center frequency are inherent (may also see the background section of the present application).

Regarding claim 11, Leung also teaches means for altering the amplitude (53 or 62 in Fig. 1).

Regarding claims 12-14 and 16, Leung also teaches using software to decode the received signal (col. 10, line 36). The claimed limitations are self evident in the domain of personal computer, especially when executing commands of the software.

Regarding claims 17 and 18, Leung teaches means for importing (10 to 20 in Fig. 1) a digital modulated signal from a main processor (11, 12, 13 in Fig. 1, 11 is inherently a processor since it is located in a computer) in a personal computing device (10 in Fig. 1, col. 6, lines 27-29), modulation to generate the digital modulated signal having been performed by the main processor in the personal computing device to obviate the need for a DSP (the modulation of the QAM signal is performed by the element 11 in the PC 10, not the DSP 20; also note that QAM stands for Quadrature Amplitude Modulation, the encoding of a QAM signal is therefore essentially a modulation process), means for converting the digital modulated signal to an analog signal (20, especially 24 in Fig. 1), means for up-converting the analog signal to a radio frequency signal (30, 41 in Fig. 1) and means for transmitting the radio frequency signal (output of 41 in Fig. 1).

Regarding claim 19, Leung further teaches means for connection to at least one bus within the personal computing device (col. 6, lines 38-39).

Regarding claim 21, Leung also teaches means for assembling the signal with respect to time (21, 22 in Fig. 1).

Regarding claim 24, as shown in 24 and 31 of Fig. 1, the means for up-converting receives a single analog signal.

Regarding claims 25-27, since Leung teaches an FM transmitter (41 in Fig. 1) which requires the process of tuning, the claimed limitations such as means for altering the bandwidth and means for altering the center frequency are inherent (may also see the background section of the present application).

Regarding claim 29, Leung also teaches means for altering the amplitude (23 or 31 in Fig. 1).

Regarding claims 30 and 31, Leung also teaches using software to process the to be transmitted (13 in Fig. 1). The claimed limitations are self evident in the domain of personal computer, especially when executing commands of the software.

Regarding claim 33, see the rationale applied to claims 30 and 31.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (U.S. Patent No. 5,444,697, "Leung" hereinafter) in view of Hammer et al. (U.S. Patent No. 4,396,978, "Hammer" hereinafter).

Leung teaches the claimed limitations (see the rationales applied to claims 1 and 18 above), but does not teach means for performing direct memory access with memory means located within the personal computing device.

Hammer teaches providing a direct memory access unit to enable the transmission speed of the data to be increased (col. 1, lines 57-63). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use means for performing direct memory access unit to increase data transmission speed.

6. Claims 5, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (U.S. Patent No. 5,444,697, "Leung" hereinafter) in view of Sugita et al. (U.S. Patent No. 4,396,978, "Sugita" hereinafter).

Regarding claim 5, Leung teaches the claimed invention as applied to claim 1 above, but does not particularly teaches an in-phase down converted signal and a quadrature phase down converted signal inputting to the A/D conversion block 61.

Sugita teaches, in a QAM/OFDM system (col. 1, lines 28-31), an in-phase A/D converter and a quadrature phase A/D converter (12, 13 in Fig. 2) that receive an in-phase down converted signal and a quadrature phase down converted signal, respectively. It is known a QAM signal has in-phase and quadrature components.

Since the system of Leung is also a QAM/OFDM system (11, 72 in Fig. 1), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate an in-phase A/D converter and a quadrature phase A/D converter into the A/D conversion block of Leung so as to process the in-phase and quadrature components.

Regarding claims 22 and 23, Leung teaches the claimed invention as applied to claim 18 above, but does not particularly teaches that the D/A conversion block 24 outputs an in-phase signal and a quadrature phase signal to the means for up-converting.

Sugita teaches, in a QAM/OFDM system (col. 1, lines 28-31), an in-phase D/A converter and a quadrature phase D/A converter (D/A CONV. in Fig. 2) that output an in-phase signal and a quadrature phase signal, respectively, to the up-converter (the multipliers coupled to the LPF in Fig. 2). It is known a QAM signal has in-phase and quadrature components. Since the system of Leung is also a QAM/OFDM system (11, 72 in Fig. 1), it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate an in-phase D/A converter and a quadrature phase D/A converter into the D/A conversion block of Leung so as to process the in-phase and quadrature components.

7. Claims 10 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (U.S. Patent No. 5,444,697, "Leung" hereinafter) in view of Brajal et al. (U.S. Patent No. 5,548,582, "Brajal" hereinafter).

Leung teaches the claimed limitations (see the rationales applied to claims 1 and 18 above), but does not teach means for frequency hopping.

Brajal teaches an OFDM frequency hopping system (abstract, col. 3, lines 3-6). It is known that the combination of OFDM with frequency hopping has the promise of providing bandwidth on demand and jamming resistance. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the means for frequency hopping, as taught by Brajal for the advantage of jamming resistance.

8. Claims 15 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leung et al. (U.S. Patent No. 5,444,697, "Leung" hereinafter).

Leung teaches the claimed limitations (see the rationales applied to claims 1 and 18 above), but does not teach that the apparatus is adapted for installation within the personal computing device. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to integrate all of the components of Leung into the personal computing device for at least the advantage of space saving. It has been held that forming in one piece an article which has formerly been formed in two pieces involves only routine skill in the art. See *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Response to Arguments

9. Applicant's arguments filed 3/4/05 have been fully considered but they are not persuasive.

The applicants argue that the QAM steps (11 and 72) that do take place in a PC are not modulation/demodulation per se, but merely preparatory encoding and decoding steps.

Response --- The applicants are reminded that QAM stands for Quadrature Amplitude Modulation. Therefore, the decoding of a QAM signal is essentially a demodulation process, which reverses the process of quadrature amplitude modulation. Similarly, the encoding of a QAM signal is essentially a modulation process, which performs quadrature amplitude modulation.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M. Fan whose telephone number is (571) 272-3042. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read "Chieh M Fan", followed by a stylized flourish or checkmark.

Chieh M Fan
Primary Examiner
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July 7, 2005